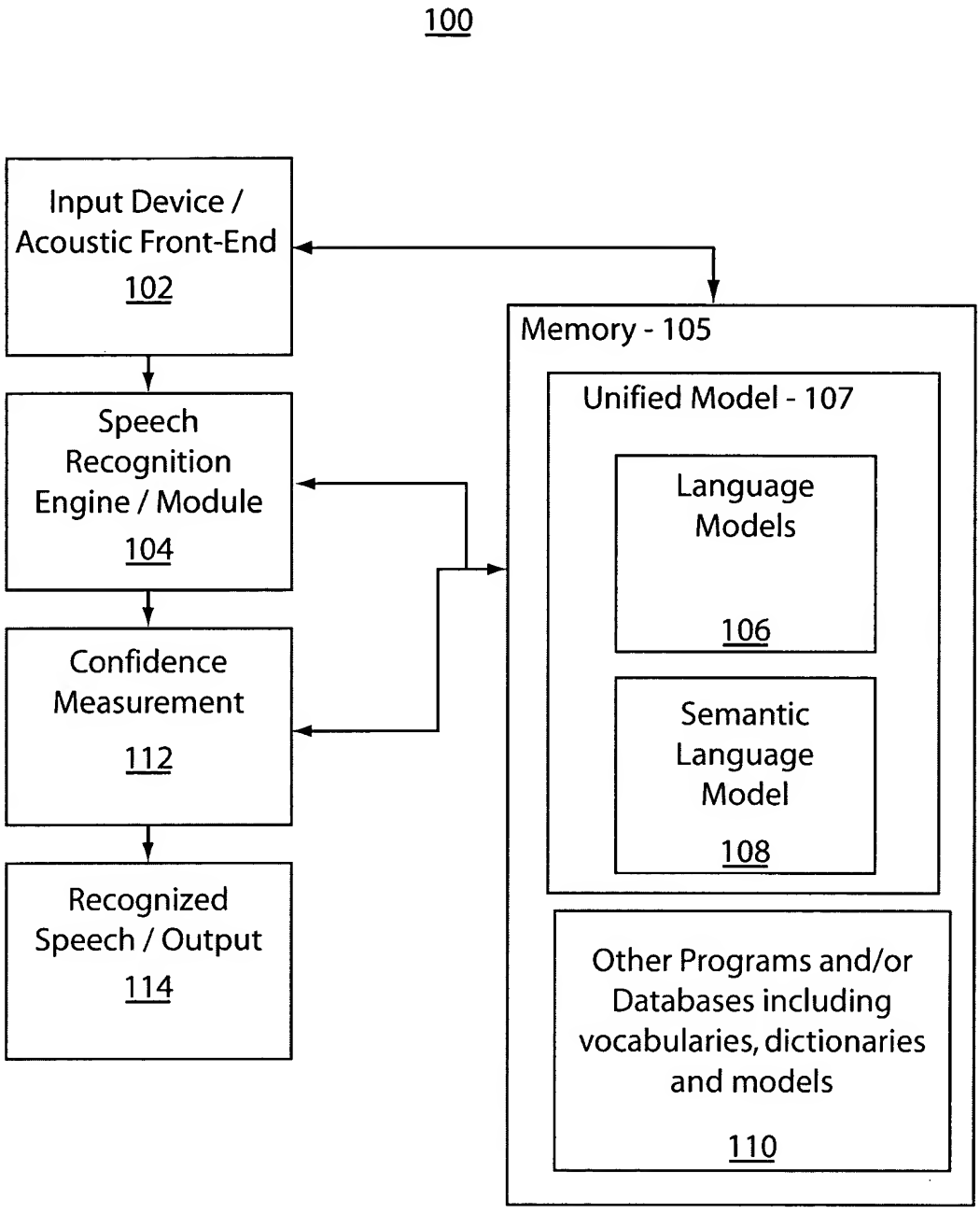
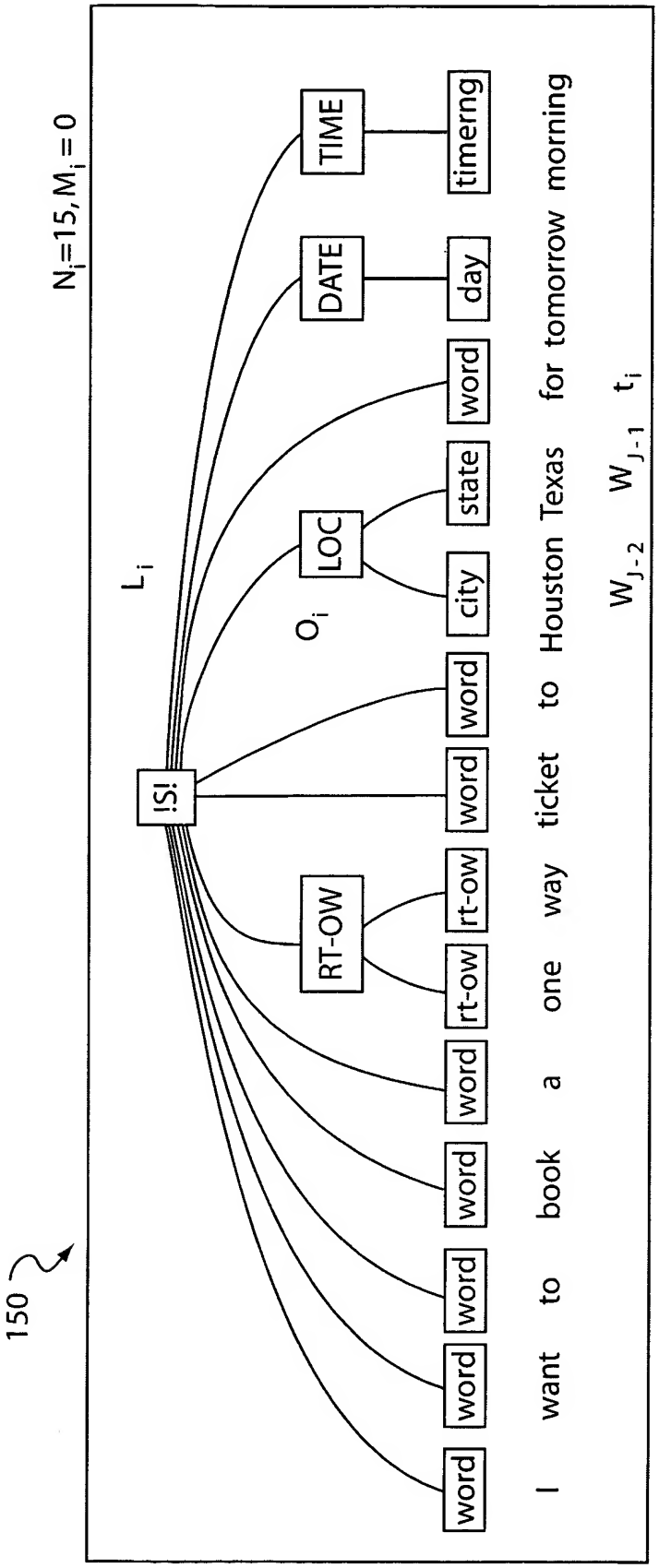

100
Input Device / Acoustic Front-End 102
Speech Recognition Engine / Module 104
Confidence Measurement 112
Recognized Speech / Output 114
Memory - 105
Unified Model - 107
Language Models 106
Semantic Language Model 108
Other Programs and/or Databases including vocabularies, dictionaries and models 110

FIG. 1



[!S! i want to book a [RT-OW one way RT-OW] ticket to [LOC Houston Texas LOC] for [DATE tomorrow DATE] [TIME morning TIME]!S!]

FIG. 2

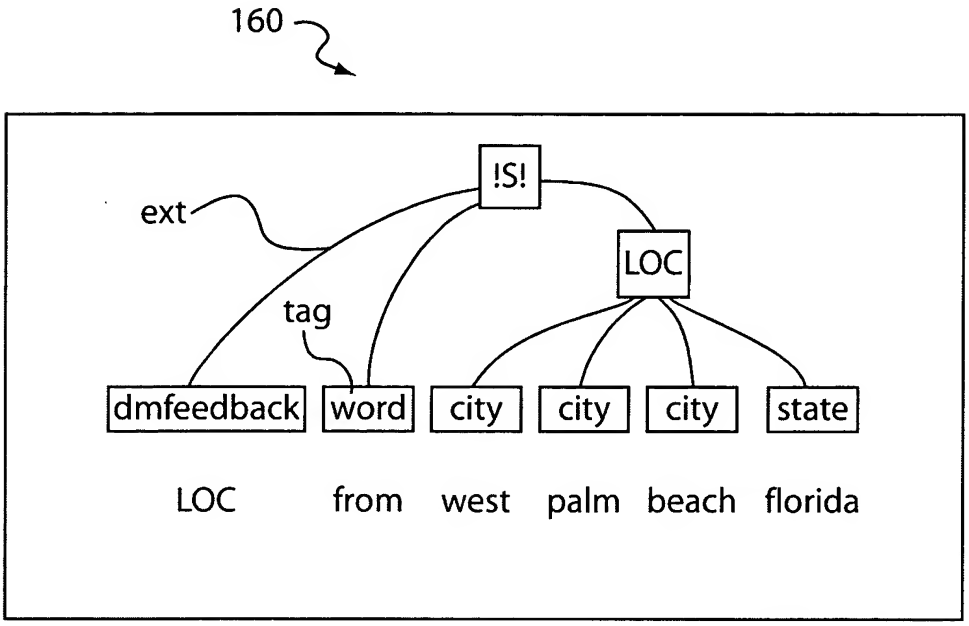

160
!S!
ext
LOC
tag
dmfeedback
word
city
city
city
state
LOC
from
west
palm
beach
florida

FIG. 3

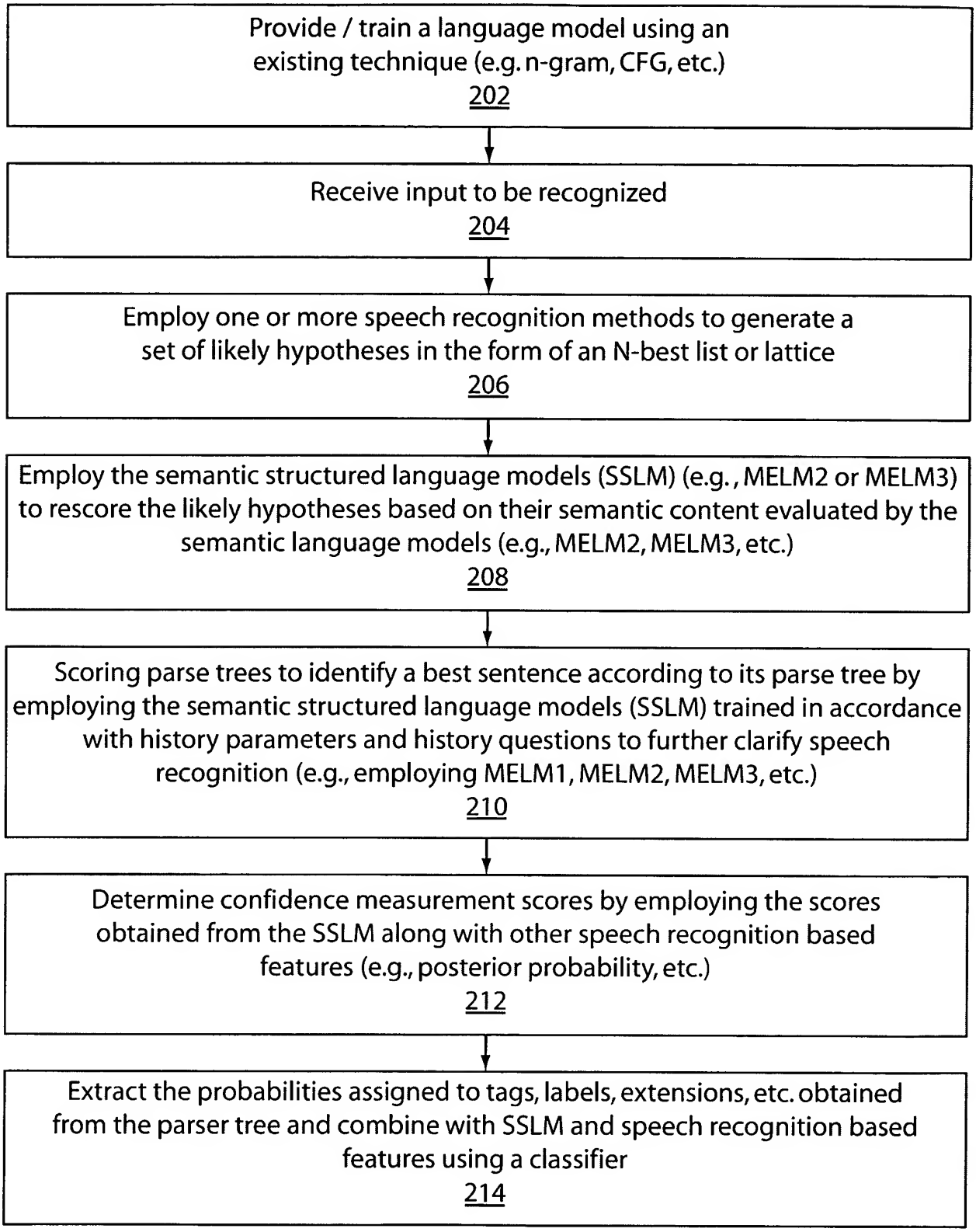

Provide / train a language model using an existing technique (e.g. n-gram, CFG, etc.)
202
Receive input to be recognized
204
Employ one or more speech recognition methods to generate a set of likely hypotheses in the form of an N-best list or lattice
206
Employ the semantic structured language models (SSLM) (e.g., MELM2 or MELM3) to rescore the likely hypotheses based on their semantic content evaluated by the semantic language models (e.g., MELM2, MELM3, etc.)
208
Scoring parse trees to identify a best sentence according to its parse tree by employing the semantic structured language models (SSLM) trained in accordance with history parameters and history questions to further clarify speech recognition (e.g., employing MELM1, MELM2, MELM3, etc.)
210
Determine confidence measurement scores by employing the scores obtained from the SSLM along with other speech recognition based features (e.g., posterior probability, etc.)
212
Extract the probabilities assigned to tags, labels, extensions, etc. obtained from the parser tree and combine with SSLM and speech recognition based features using a classifier
214

FIG. 4